

Food quality tubing made from PVC

- complies with European Pharmacopoeia 3.1.1.1, 3.1.1.2 and 3.1.1.4
- complies with USP XXIV, class 6 and ISO 10993
- good resistance against oils and greases
- good dielectric characteristics
- low inflammability
- contains plasticizer
- flexible
- good chemical resistance
- UV and ozone proof
- available in a range of colours
- available in a range of hardness's
- individual printing possible

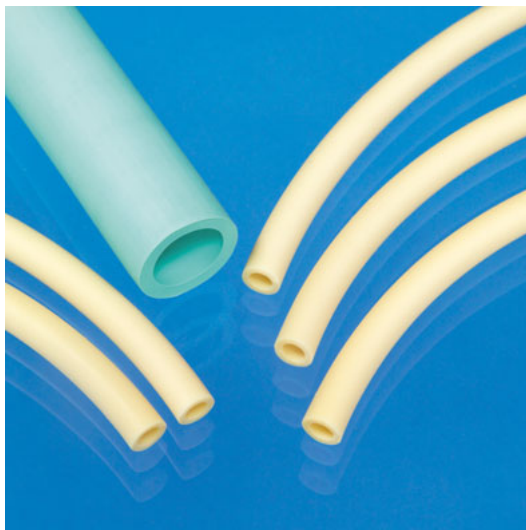
Temperature range

-10 °C to +60 °C

Standard colours

☐ natural

PVC



Food quality tubing made from Santoprene®

- complies with FDA 21 CFR 177.2600 and 21 CFR 177.1210
- highly flexible
- good chemical resistance
- high flexibility at low temperatures
- minimal diffusion of liquid and gaseous mediums
- excellent resistance to aging from hot air exposure
- comparable with rubber types
- highly dynamic fatigue strength
- available in a range of colours
- available in a range of hardness's
- individual printing possible

Temperature range

-40°C to +125 °C

Standard colours

☐ natural

TPE

Insulating tubing



... bundle the flow of energy to make light shine

PUR



Insulating tubing made from PUR

- highly flexible
- resistant to oil, water, ozone and UV rays
- unplasticized so no embrittlement
- good dielectric characteristics
- insulation class B (VDE standard 0530)
- manufactured in accordance with DIN 40 621
- excellent mechanical characteristics
- hardness 85 Shore A

Temperature range

-40 °C to +120 °C

Standard colours

■ black

PVC



Insulating tubing made from PVC

- complies with DIN 40 621 B
- low price
- self-extinguishing
- minimum breakdown voltage 20 kV/mm (pursuant to IEC 243)
- insulating class Y (VDE standard 0520)
- highly flexible
- cadmium-free

Temperature range

-20 °C to +85 °C

Standard colours

■ black

PE



Insulating tubing made from PE

- manufactured in accordance with DIN 40 621 B
- low price
- non-self-extinguishing
- insulating class Y (VDE standard 0520)
- flexible
- safe to use with foodstuffs
- good dielectric characteristics
- resistant to a number of aggressive media

Temperature range

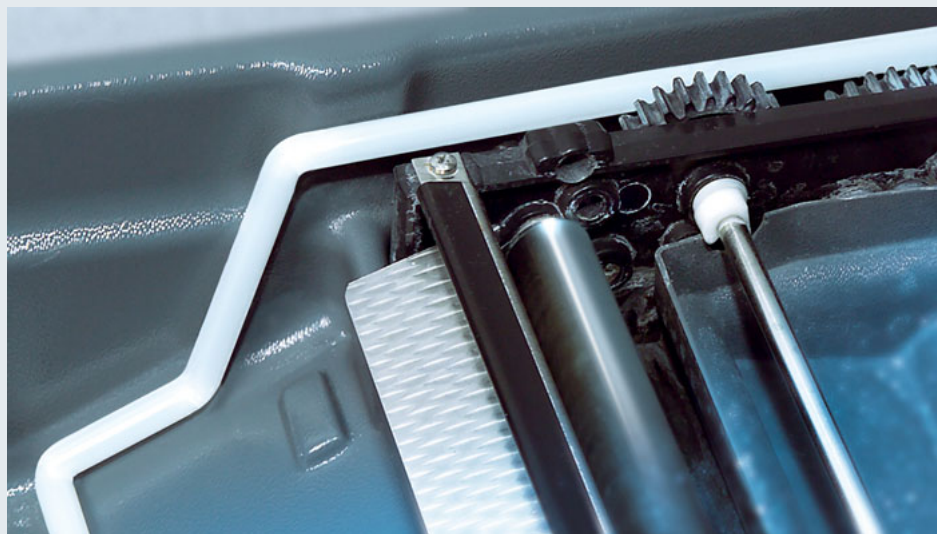
-30 °C to +75 °C

Standard colours

■ black

Form tubing

... adjusts to all possible required shapes



Form tubing made from PUR

- individual mouldability as 2D and 3D parts
- flexible
- without plasticizer
- unplasticized
- no hardening or embrittlement
- kink resistant
- high elasticity
- highly resistant to abrasion
- UV resistant
- available in a range of colours
- available in a range of hardness's

Temperature range

-40 °C to +85 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue

PUR



Form tubing made from PA

- individual mouldability as 2D and 3D parts
- lightweight
- high chemical resistance to oil, grease, fuels, thinners and hydraulic fluids
- good temperature resistance
- good UV resistance
- highly resistant to abrasion
- quick fitting
- available in a range of colours
- calibrated

Temperature range

-40 °C to +90 °C

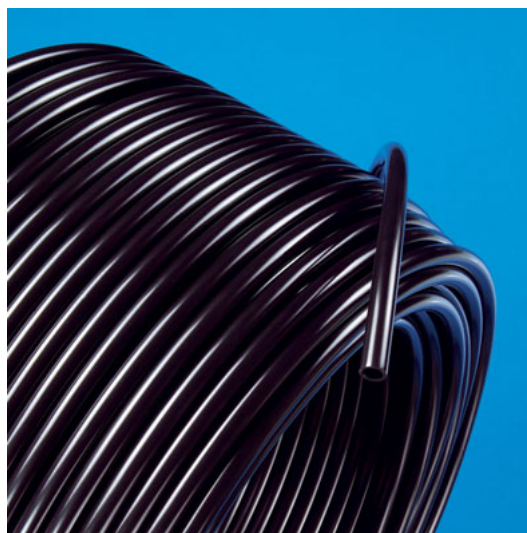
Standard colours

- ☐ natural
- ☒ black
- ☒ blue

PA

Energy chaining tubing

... sliding carefree
and smoothly



PUR

Energy chaining tubing made from PUR

- good sliding qualities
- lightweight
- high flexibility at low temperatures
- UV resistant
- highly elasticity
- high buffering capacity
- excellent abrasion resistance
- kink resistant
- excellent resistance against tear propagation
- oil and grease resistant
- easily fitted
- available in a range of colours
- small bending radius
- unplasticized so no embrittlement
- individual printing is possible

Temperature range

-40 °C to +85 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue



PA

Energy chaining tubing made from PA

- good sliding qualities
- lightweight
- excellent temperature resistance
- highly resistant to shock and impact
- excellent compressive strength
- high chemical resistance to oil, grease, fuels, solvent and hydraulic fluids
- excellent resistance to UV-rays
- highly resistant to stress cracking
- excellent abrasion resistance characteristics
- water insensitive
- easily fitted
- minimal pressure loss
- available in a range of colours
- calibrated

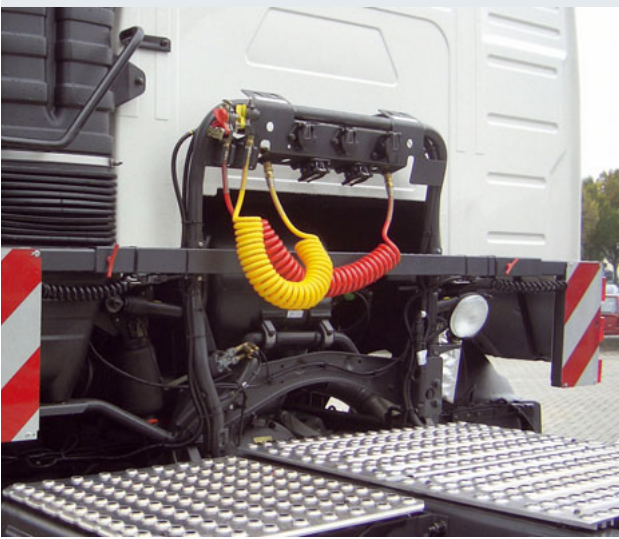
Temperature range

-40 °C to +90 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue

Brake tubing and coil tubing



... secure the confidence when using brakes



Brake tubing made from PA

- lightweight
- highly resistant to oil, grease, solvent and hydraulic fluids
- excellent compressive strength
- highly resistant to shock and impact
- stable against light and heat
- easily fitted: calibrated and suitable for use with push-in fittings
- minimal pressure loss
- fully compliant with DIN 73 378 and DIN 74 324

Temperature range

-40 °C to +90 °C

Standard colours

■ black

PA



PUR coil tubing made from PUR

- will not break at fittings
- excellent antikink characteristics – kinking leaves no defects
- longer operation length
- highly resistant to tearing off at fittings
- excellent springback characteristics
- unplasticized so no embrittlement
- resistant to oil and grease
- resistant to UV and ozone
- service life many times longer than conventional coil tubing

Certification

German Technical Surveyance Association (TÜV)-type approved (Certificate R 9910199)

Certified according to: DIN 74 323, DIN 74 324, ISO 7268-2, ISO 7375-2, DIN 73 378, DIN 74 310-2

Standard colours

■ red
■ yellow

PUR

Flame resistant tubing



... remain steadfast –
even when sparks
start to fly!

PUR



Flame resistant tubing made from PUR

- hardly flammable in accordance with UL94-VO
- flexible
- unplasticized
- no hardening or embrittlement
- kink resistant
- high elasticity
- highly resistant to abrasion
- UV resistant
- available in a range of colours
- available in a range of hardness's

Temperature range

-40 °C to +90 °C

Standard colours

■ black

PVDF



Flame resistant tubing made from PVDF

- hardly flammable in accordance UL94-VO
- excellent temperature resistance
- excellent pressure strength
- excellent UV-resistance
- low gas permeability
- excellent mechanical properties
- resistant to numerous chemicals

Temperature range

-40 °C to +150 °C

Standard colours

□ natural

TPE



Flame resistant tubing made from Santoprene®

- hardly flammable in accordance with UL94-VO
- highly flexible
- good chemical resistance
- highly flexible at low temperatures
- minimal diffusion of liquid and gaseous mediums
- excellent resistance to aging from hot air exposure
- similar to types of rubber
- excellent dynamic fatigue resistance

Temperature range

-40 °C to +125 °C

Standard colours

□ natural

■ black

Tubing for special cable



... with this arrangement, everyone pulls on the same strand.



Tubing for special cable made from PUR

- lightweight
- high flexibility at low temperatures
- UV resistant
- high elasticity
- high buffering capacity
- excellent abrasion resistance
- kink resistant
- excellent resistance against tear propagation
- oil and grease resistant
- easily fitted
- available in a range of colours
- small bending radius
- unplasticized so no embrittlement

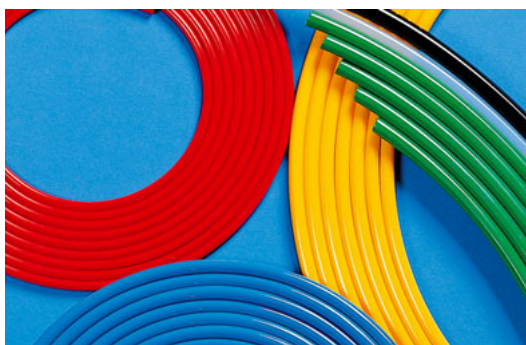
Temperature range

-40 °C to +85 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue

PUR



Tubing for special cable made from PA

- lightweight
- excellent temperature resistance
- highly resistant to shock and impact
- excellent compressive strength
- high chemical resistance to oil, grease, fuels,
- solvent and hydraulic fluids
- excellent resistance to UV-rays
- highly resistant to stress cracking
- excellent abrasion resistance characteristics

Temperature range

-40 °C to +90 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue

PA



Tubing for special cable made from PE

- lightweight
- physiologically safe and tasteless (complies to the recommendation III of BGA and complies with FDA regulation 21 CFR 177.120 c 2.1)
- low permeability for water, water vapor and gases
- resistant to various chemicals (see table of chemical resistance)
- sterilizable using ethylene oxide and gamma rays
- good dielectric characteristics
- easily fitted

Temperature range

-30 °C to +70 °C

Standard colours

- ☐ natural
- ☒ black
- ☒ blue

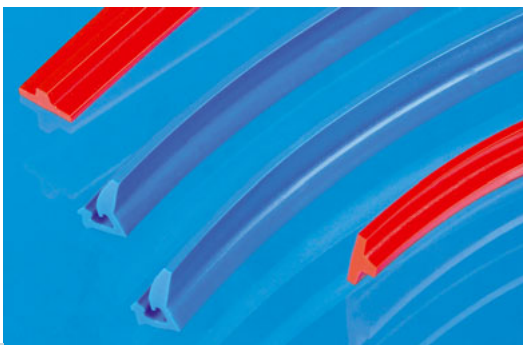
PE

Profiles and profile tubing



... offer numerous possibilities no matter what shape

PUR



PUR scraper profile

- to your individual specifications
- excellent grip
- flexible
- unplasticized
- no hardening or embrittlement
- high elasticity
- highly resistant to abrasion
- UV-resistant
- available in a range of colours
- available in a range of hardness grades

Temperature range

-40 °C to +85 °C

Standard colours

diverse

PUR



Channeled profiles made from PUR

- extremely flexible
- permanently elastic
- high flexibility at low temperatures
- highly resistant to abrasion
- excellent grip
- available in a range of hardness grades
- hydrolysis-resistant and microbe-resistant versions available
- made according to your technical specifications
- available in your choice of colour (corporate identity)

Temperature range

-40 °C to +85 °C

Standard colours

☐ natural

PUR



PUR flat tubing

- flexible
- resistant to oil, water, ozone and UV rays
- unplasticized so no embrittlement
- good dielectric characteristics
- insulation class B (German Electrical Association, VDE, standard 0530)
- manufactured in accordance with DIN 40 621
- excellent mechanical characteristics
- hardness 85° Shore A

Temperature range

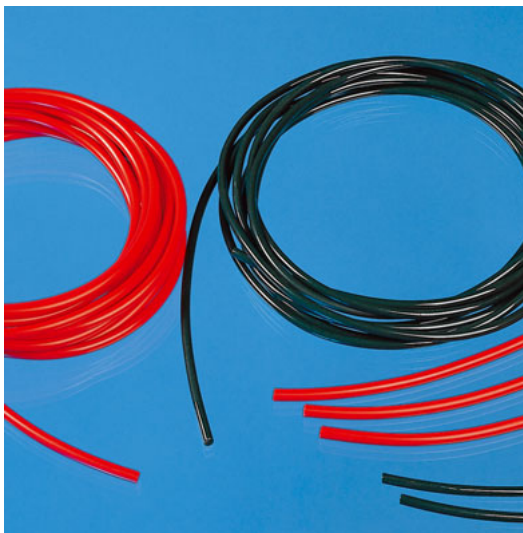
-40 °C to +85 °C

Standard colours

☐ natural

Round- and hollow belts

... to ensure things get moving – permanently



PUR round belts

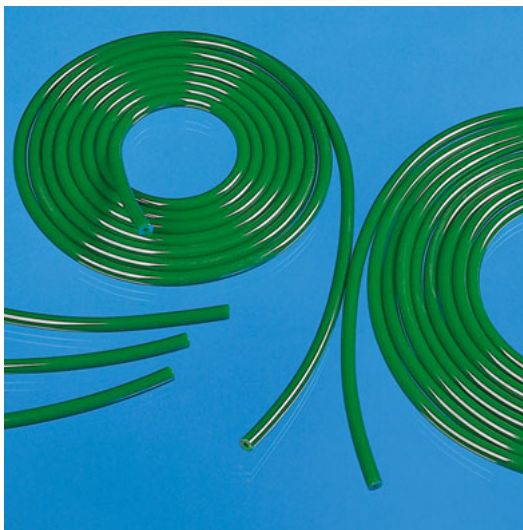
- tensile and flexible
- high abrasion resistance
- oil and grease resistant
- long service life
- high working stress
- available in food safe quality grades
- easily welded to continuous belts

Temperature range

-40 °C to +85 °C

Standard colours

- ☒ green
- ☒ red
- ☐ natural (transparent)



PUR hollow belts

- better flexibility than round belts with identical diameters
- high tensile strength
- excellent abrasion resistance
- oil and grease resistant
- long service life
- high working stress
- available in food safe quality grades
- easily welded to form continuous belts

Temperature range

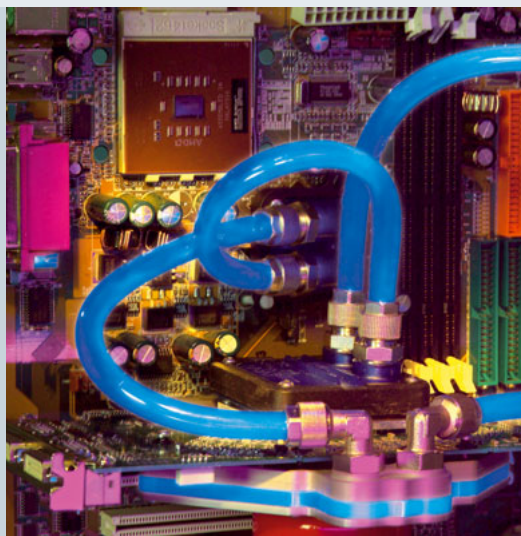
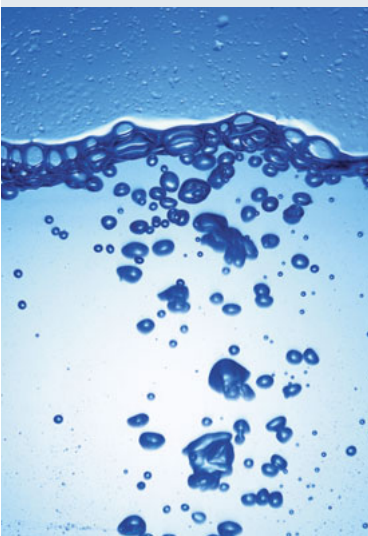
-40 °C to +85 °C

Standard colours

- ☒ green
- ☒ red
- ☐ natural (transparent)

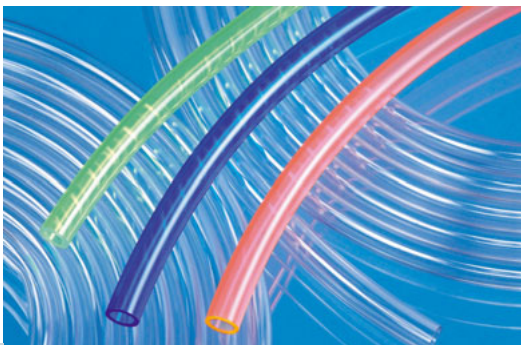
PUR

Water-cooling tubing



... for cool looking cooling elements

PUR



PUR water-cooling tubing

- high flexibility at low temperatures
- hydrolysis- and microbe resistant special PUR materials
- unplasticized
- no hardening or embrittlement
- kink resistant
- highly elasticity
- excellent abrasion resistance
- UV resistant
- available in a range of colours
- available in a range of hardness grades

Temperature range

-40 °C to +85 °C

Standard colours

☐ transparent

PVC



PVC water-cooling tubing

- hydrolysis resistant
- low flammability
- good resistance to oils and greases
- good dielectric characteristics
- contains plasticizers
- good chemical resistance
- flexible
- UV and ozone resistant
- available in a range of colours
- available in a range of hardness grades
- individual printing possible

Temperature range

-10 °C to +60 °C

Standard colours

☐ natural (transparent)

TPE



Santoprene® water-cooling tubing

- highly flexible at low temperatures
- highly flexible
- hardly flammable in accordance with UL94-V0
- good chemical resistance characteristics
- minimal diffusion of liquid and gaseous mediums
- similar to types of rubber
- excellent dynamic fatigue resistance
- available in a range of colours
- available in a range of hardness grades

Temperature range

-40 °C to +125 °C

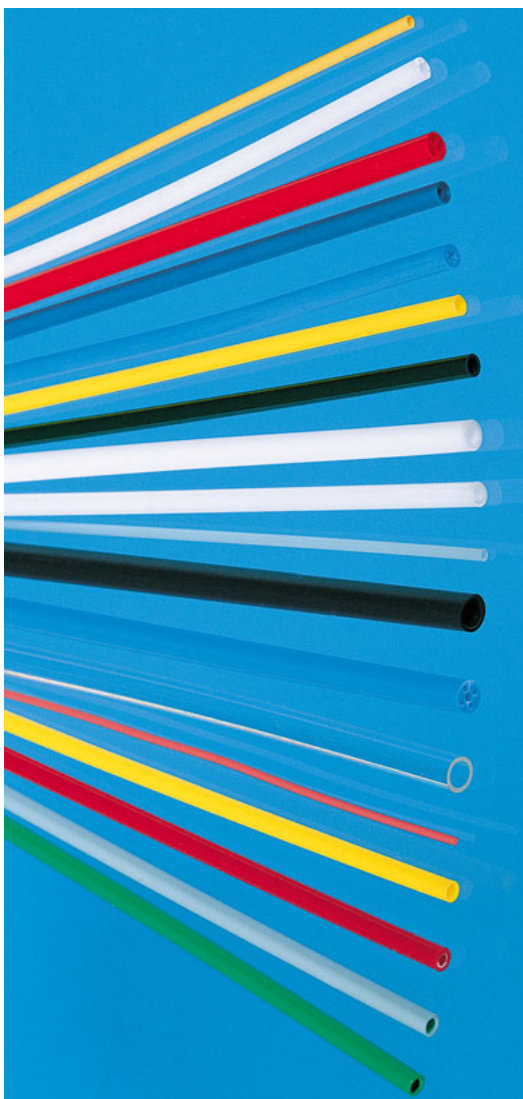
Standard colours

☐ natural

Tubing manufacture in clean room



... the cleanest
solution for special
requirements



Clean room manufactured hoses

Class 100.000 (ISO class 8) and 10.000 (ISO class 7) clean rooms are available for the manufacture of tubing for medical engineering or other applications that require exceptionally pure products.

We process numerous thermoplastic synthetic materials to tubing here in sizes from 0.6 mm to 20 mm.

Here, in addition to standard tubing we also offer multi-lumen hoses and multi-layer hoses.

We can naturally develop »made to measure tubing«. Here we would adapt our tubing to meet your specific material requirements, quality, dimensions etc.



Standard colours

☐ natural (transparent)

Synthetic materials

- PUR
- PA
- PA-E
- PVDF
- PE
- PP
- PVC
- TEEE
- TPE

Chemical resistance

Medium (aq = in an aqueous solution)	PUR	PA	PE	PVDF	PVC
Acetic acid	3	4	2	3	3
Acetic acid anhydride	4	1	3	4	4
Acetone	4	1	1	3	5
Aluminium salts, aq	2	1	4	1	1
Alums, aq	1	1	1	1	1
Aminobenzoic acid	4	2	1	2	3
Ammonia, aq	4	1	1	4	1
Ammonia, g	1	1	1	2	1
Ammonium acetate, aq	4	1	1	3	1
Ammonium carbonate, aq	4	1	1	1	1
Ammonium chloride, aq	1	1	1	1	1
Ammonium nitrate, aq	1	1	1	1	1
Ammonium phosphate, aq	1	1	1	1	1
Ammonium sulfate, aq	1	1	1	1	1
Amyl alcohol	2	1	1	1	1
Antifreeze	2	1	1	1	1
Barium salts	1	1	1	1	1
Battery acid	1	3	1	1	3
Beef tallow	1	1	1	1	2
Beer	1	1	1	1	1
Benzaldehyde	3	1	1	1	3
Benzoic acid	4	1	1	1	3
Benzoic acid, aq	4	1	1	1	1
Bone fat	1	1	2	1	3
Boric acid	1	1	1	1	1
Brake fluid	4	1	3	1	3
Bromine, aq	4	4	4	1	4
Bromine, l	4	4	4	1	4
Butane, g	1	1	4	1	1
Butane, l	1	1	1	1	2
n-Butanol	4	1	4	1	3
n-Butyl alcohol	4	4	4	1	4
Butylacetate (acetic acid butyl ester)	4	1	4	2	5
Butylacetate	4	1	2	3	4
Calcium chloride, aq	1	1	1	1	1
Calcium nitrate, aq	1	1	1	1	1
Carbon disulfide	3	1	4	1	4
Carbon tetrachloride	3	1	4	1	4
Carnation oil	1	1	4	1	2
Chlorine, g	4	4	4	1	4
Chlorine, l	4	4	4	1	4
Chlorobenzoic acid	3	3	4	1	4
Chloroform	4	3	4	1	4
Chlorosulfonic acid	4	4	4	1	4
Chrome bath	3	4	1	1	1
Chromic acid	4	4	2	1	3
Chromosulfuric acid	3	4	1	1	2
Chromium salts	3	1	1	1	1
Citric acid	2	1	1	1	1
Cleaner	1	1	1	1	1
Coca-Cola®	1	1	1	1	1

Chemical resistance
(at room temperature)

- 1 Excellent resistance
- 2 Good resistance
- 3 Mediocore resistance
- 4 Non-resistant
- 5 Liable to dissolve

Medium (aq = in an aqueous solution)	PUR	PA	PE	PVDF	PVC
Cocoa	1	1	1	1	1
Coconut oil	1	1	2	1	1
Cod-liver oil	1	1	1	1	4
Coffee	1	1	1	1	1
Cooking oil, animal	2	1	3	1	2
Cooking oil, vegetable	2	1	4	1	2
Corn oil	2	1	4	1	1
Cresol	4	4	4	1	4
Cresol, aq	4	3	4	1	4
Cyclohexane	2	1	1	1	1
Cyclohexanol	4	1	1	1	5
Cyclohexanone	1	1	4	3	5
Decalin®	2	1	1	1	1
Detergent	1	1	1	1	2
Dibutyl phthalate	3	1	3	1	3
Diesel fuel	1	1	2	1	2
Dimethylether	2	1	2	2	2
Dimethylformamide	4	1	1	5	4
1,4-Dioxane	4	1	1	3	4
Engine oil	2	1	3	1	3
Ethanol	1	1	1	1	3
Ether	3	1	4	1	3
Ethyl acetate	4	1	2	3	5
Ethylene chloride	2	3	4	1	4
Ethylhexanol	4	1	4	1	4
Ferric salts	2	1	1	1	1
Fizzy drink	1	1	1	1	1
Formaldehyde, aq	2	3	1	1	3
Formaline	2	3	1	1	2
Formic acid	4	4	2	1	4
Fruit juice	1	1	1	1	1
Fuel	2	1	4	1	4
Fuel oil	1	1	3	1	4
Gin	1	1	1	1	2
Glycerine	1	1	1	1	1
Glycol	2	1	1	1	1
Heptane	2	1	1	1	1
Hexane	2	1	1	1	1
Honey	1	1	1	1	1
Hydrochloric acid (up to 20%)	2	4	1	1	2
Hydrochloride, g	2	4	1	1	2
Hydrogen peroxide, aq	2	2	1	1	3
Ink	1	1	1	1	1
Isooctane	1	1	4	1	1
Isopropanol	3	1	1	1	3
Jelly	1	1	1	1	1
Lactic acid	3	2	2	1	3
Lanolin	1	1	3	1	2
Lemon juice	1	1	1	1	1
Linseed oil	1	1	1	1	3
Liquors	1	1	1	1	2

Medium

(aq = in an aqueous solution)

	PUR	PA	PE	PVDF	PVC
Magnesium salts, aq	1	1	1	1	1
Margarine	1	1	3	1	1
Mercury	1	1	1	1	3
Mercury salts, aq	1	1	1	1	3
Methanol	2	1	1	1	3
Methyl ethyl ketone	4	1	4	3	3
Methylene chloride	4	3	4	2	4
Milk	1	1	1	1	1
Mustard	1	1	1	1	1
Nail varnish	4	1	1	1	4
Nail varnish remover	4	1	1	1	4
Naphthalin	1	1	4	1	2
Nickel salts, aq	1	1	1	1	1
Nitric acid (up to 25%)	5	4	2	1	3
Nitrobenzoic acid	4	2	4	1	4
Octane	1	1	1	1	4
Oil no. 3 (ASTM D390-59)	1	1	3	1	2
Oleic acid	1	2	2	1	2
Olive oil	1	1	1	1	2
Oxalic acid, aq	4	2	1	1	3
Ozone (< 0,5 ppm)	1	1	4	1	3
Palm oil	2	1	4	1	3
Paraffin	2	1	3	1	1
Paraffin ether	1	1	4	1	3
Paraffin oil	2	1	3	1	1
Paraffin oil (petroleum jelly)	2	1	3	1	2
Pectin	1	1	1	1	1
Pepper	1	1	1	1	1
Peppermint oil	1	1	3	1	2
Perfume	1	1	1	1	4
Phenol	4	4	4	1	4
Phosphoric acid	3	4	4	1	1
Phosphorus pentoxide	2	3	1	1	1
Pine needle oil	2	1	2	1	2
Potassium carbonate	3	1	1	4	1
Potassium chlorate, aq	2	2	1	1	1
Potassium chloride, aq	1	1	1	1	1
Potassium chromate, aq	1	3	1	1	1
Potassium hydroxide, aq	1	1	1	1	2
Potassium iodine, aq	2	1	1	1	1
Potassium nitrate, aq	2	1	1	1	1
Potassium permanganese, aq	3	3	1	1	1
Potassium sulfate	1	1	1	1	1
Propane, g	2	1	3	1	1
Propane, l	2	1	4	1	1
Pyridine	5	1	1	3	4
Rum	1	1	1	1	2
Sea water	1	1	1	1	1
Shampoo	1	1	1	1	1
Silicon oil	1	1	1	1	4
Silver salts, aq	1	1	1	1	1

Medium

(aq = in an aqueous solution)

	PUR	PA	PE	PVDF	PVC
Soapy water	2	1	1	1	1
Soda	1	2	1	1	1
Sodium bicarbonate, aq	1	1	1	1	1
Sodium bisulfite, aq	2	1	1	1	1
Sodium carbonate (borax), aq	1	1	1	1	1
Sodium carbonate, aq	1	1	1	1	1
Sodium chlorate	2	2	1	1	1
Sodium chloride, aq	1	1	1	1	1
Sodium hydroxide (caustic soda)	4	1	4	4	4
Sodium hydroxide, aq	2	1	1	4	1
Sodium hypochlorite	4	3	1	1	3
Sodium nitrate, aq	1	1	1	1	1
Sodium nitrite, aq	1	2	1	1	1
Sodium perborate, aq	2	1	1	1	3
Sodium phosphate, aq	2	1	1	1	1
Sodium silicate	3	1	1	1	1
Sodium sulfate, aq	1	1	1	1	1
Sodium sulfide, aq	1	1	1	4	1
Sodium sulfite, aq	1	1	1	1	1
Sodium thiosulfate	2	1	1	1	1
Sodium thiosulfate (antichlor), aq	2	1	1	1	1
Soybean oil	2	1	4	1	2
Spruce needle oil	2	1	2	1	3
Starch	1	1	1	1	1
Stearic acid	1	2	4	1	1
Sugar, aq	1	1	1	1	1
Sulfur	1	1	4	1	4
Sulfuric acid (concentrated)	4	4	4	4	4
Sulfuric acid (up to 50%)	2	4	1	1	3
Sulfur dioxide, g	3	1	1	1	2
Tar (hot tar)	4	1	3	1	3
Tartaric acid, aq	1	1	1	1	1
Tea	1	1	1	1	1
Tetrahydrofuran	4	1	3	2	4
Tetralin® (tetrahydronaphthalene)	2	1	4	2	1
Tin dichloride	1	1	1	1	1
Toluene	4	1	4	1	4
Trichloroethylene	4	2	4	1	4
Turpentine (oil of)	4	1	3	1	3
Urea, aq	1	1	1	1	1
Vanilla	1	1	1	1	1
Vaseline	1	1	3	1	2
White spirit	1	1	4	1	3
Wine	1	1	1	1	1
Xylene	4	1	4	1	4

This table has been compiled on the basis of in-house tests, the recommendations of our raw material suppliers, and customer experience. Differences in user environments will affect the performance characteristics of the product in different ways. The ratings given above are therefore approximate only. If the product is being used in a particular setting for the first time, it is advisable to test the product in the proposed user environment, especially if it will be coming into contact with combinations of substances.

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